Area of strand, $\mathbf{A_{ps}}$ **(1 tendon)** = 98.7 mm^2 (0.153 in^2)

Jacking force per strand = 214 MPa (31 kips)

Prestress losses =10.4%

Concrete compressive strength, $\mathbf{f'_c}$ **(girder)** = 65 MPa (9,440 psi.)

Concrete unit weight, $\mathbf{g_c}$ **(girder)** = 2,412 kg/m^3 (150.6 lbs/ft^3)

Maximum concrete strain at ultimate moment = 0.003

Based on the *Cracked Beam* analysis, the ultimate moment of the girder was found to be 8,189 kN-m (6,040 ft-kips). To produce this ultimate moment in the girder, an applied point load of 1,539 kN (346 kips) was required. Under this moment, the stress in the bottom layer strands was 1,855 MPa (269 ksi). The analysis also found that the cracking moment of the girder was 5,558 kN-m (4,099 ft-kips) with the corresponding applied point load being 996 kN (224 kips). In addition, the stress in the bottom layer strands with the girder supporting the weight of a deck was 1,262 MPa (183 ksi), and the stress under service load was 1,358 MPa (197 ksi).

To determine the fatigue overload, a composite girder (i.e., the test girder combined with a deck) was analyzed first by the *Cracked Beam* program, and the ultimate moment was found to be 9,923 kN-m (7,319 ft-kips). Under 75% of the ultimate moment, the stress in the bottom layer stands was 1,531 MPa (222 ksi). The moment that would produce the same stress in the test girder (non-composite) was 6,195 kN-m (4,569 ft-kips). After subtracting the dead load moment of 727 kN-m (535.6 ft-kips), the required overload was found to be 1,130 kN (254 kips), which was the same fatigue overload used during the test.